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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/507,429	09/10/2004	Hisaji Oyake	890050.503USPC	6263

500 7590 08/18/2006

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EXAMINER	
ANGEBRANNDT, MARTIN J	

ART UNIT	PAPER NUMBER
1756	

DATE MAILED: 08/18/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/507,429	OYAKE ET AL.	
	Examiner	Art Unit	
	Martin J. Angebranndt	1756	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *5/31/06, 9/10/04*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-35* is/are pending in the application.

4a) Of the above claim(s) *27-35* is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-26* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☒ Claim(s) *1-35* are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *10 September 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *9/10/04*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

1. The restriction requirements of the previous office action is incorporated by reference here. The response of the applicant electing group I, claims 1-26 for examination has been received.

2. Applicant's election of group I, claims 1-26 in the reply filed on 5/31/05 is acknowledged. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election has been treated as an election without traverse (MPEP § 818.03(a)).

3. Claims 27-35 are withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected invention, there being no allowable generic or linking claim. Election was made **without** traverse in the reply filed on 5/31/06.

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

6. Claims 3,5,713,15,17,21,23, and 25 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Takeuchi JP 09-231569 (machine translation attached).

The formation of prepits using laser pulses is illustrated in figure 1, where the 3 and 4 T pulses are formed with a duty cycle of 100% and the 5 and 14T pulses each have a lower duty cycle across the pulse, with the duty cycle of the 5T pulse only having one off cycle and the 14T pulse having 3, so the duty cycle of the 14T pulse is the lowest. An optical disk is formed by coating a substrate with a photoresist, irradiating it according to the desired pulse sequence, development of the resist, and the formation of a metal mold via electroforming to produce a metal master which has the opposite polarity of the resist pattern which is then used to form the disk substrate [0002]. Embodiment 1 uses a photoresist coating glass substrate and a modulated argon ion laser and the exposure conditions refer to figure 1 [0011-0016]. The duty cycle within the pulse sequence used to form the pits is constant. This allows the formation of more accurate and pit sizes. (abstract and [0007])

The examiner holds that the teachings of the subsequent use of the photoresist master to form a stamper and using it to form a optical recording medium substrate in section [0002] and no other subsequent processing allows one to immediately envision the addition of these steps to the process set forth in embodiment 1, thereby anticipating the claimed invention.

7. Claims 3,7,13 and 17 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Mizuta JP 05-290412 (machine translation attached).

Embodiment 1 uses a photoresist coating glass substrate and a modulated argon ion laser and the exposure conditions where the 1 T pulse has a duty cycle of 100% and the 10 T pulse has a lower duty cycle as shown in figure 1 [0010-0011]

The longer pulse has the lower duty cycle and the claims rejected under this heading do not require the duty cycle to be constant through the exposure of the pit. The examiner notes that some of the claims only recite recording using laser pulses and do not require that the laser be pulse during the exposure of a single pit.

8. Claims 3,7,13 and 17 are rejected under 35 U.S.C. 102(b) as being fully anticipated by Morimoto JP 01-286144.

Embodiment 1 uses a photoresist coated substrate for mastering optical disks and the exposure conditions where the 1 T pulse has a duty cycle of 100% and the 10 T pulse has a lower duty cycle as shown in figures 5 and 7 (page 2/upper right and lower left colums)

The longer pulse has the lower duty cycle and the claims rejected under this heading do not preclude the exposure conditions where the longer pulse(s) have the duty cycle of the clock and the shorter pulses have a duty cycle of 100%. The examiner notes that some of the claims only recite recording using laser pulses and do not require that the laser be pulse during the exposure of a single pit.

9. Claims 3,7,13 and 17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Miyake et al. JP 10-334468, in view of Furumiya et al. '126.

Miyake et al. JP 10-334468 (machine translation attached) teaches the formation of a photoresist coated disk, the exposure of the disk using a pulsed beam, the development of the resist, the formation of a nickel master from the resist image and the use of that nickel master to emboss substrates for optical recording media. [0002-0004]. Figures1 and 2 show the driving multipulse sequence used to form a data pit of a certain length with the duty ratio being 80-90%. [0012-0015]

Furumiya et al. '126 teaches a pulse sequence similar to that shown in Miyake et al. JP 10-334468, but used to form data pits in a phase change recording layer and further shows the pit recording signals for 2T, 3T, 4T and 6T in figure 3 (traces n and o).

It would have been obvious to use other pulses from this sequence in the process of forming a stamper as taught by Miyake et al. JP 10-334468 to based uponthe direction nto Efm whichincludes pulses in the 3-14T range with Furumiya et al. '126 evidencing the pulse sequence used to form each of the pits.

10. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi JP 09-231569, in view of either Oyake et al. '312 or Oyake et al. WO 02/069336.

Oyake et al. '312 teach in examples 1, the formation of a stamper having grooves therein, where the substate is coatings with a light absorbing composition, a photoresist, this is then exposured using a Kr ion laser, the photoresist developed and a nickel master formed from it [0051-0055]. The use of the stamper to form optical recording medium substrate and the formation of masters with pits for read only media is disclosed. [0004-0005]. (N.B.this application was abandoned) The presence of the light absorbing layer is demonstrated to improve the exposure pattern.

Oyake et al. WO 02/069336 teach in examples 1, the formation of a stamper having grooves therein, where the substate is coatings with a light absorbing composition, a photoresist, this is then exposured using a Kr ion laser , the photoresist developed and a nickel master formed from it (10/20-11/16). The use of the stamper to form optical recording medium substrate and the formation of masters with pits for read only media is disclosed. (1/14-2/24). The presence of the light absorbing layer is demonstrated to improve the exposure pattern.

It would have been obvious one skilled in the art to modify Takeuchi JP 09-231569 by adding a light absorbing layer as taught by either Oyake et al. '312 or Oyake et al. WO 02/069336 with a reasonable expectation of gaining the benefits ascribed to this, specifically the improved exposure pattern..

11. Claims 1-26 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takeuchi JP 09-231569, in view of either Mizuta JP 04-263140 or Sato et al. '510.

Mizuta JP 04-263140 teaches the formation of an interferometric film which absorbs the light and prevents reflection from the glass substrate surface. (abstract). The examiner does not have a translation of this references, if the applicant has a copy or has one made, the examiner would appreciate a copy with the subsequent response).

Sato et al. '510 teaches in example 1, an undercoating comprising a melamine, together with 4,4'bis(diethylamino)benzophenone, 2,2',4,4'tetrahydroxybenzophenone together with a surfactant in a solvent, which is coated onto a silicon wafer and heated to form an undercoating layer of 100 nm thick. A photoresist was then coated over this to a thickness of 1000 nm (11/35-12/5). This experienced no intermixing of the layers, no notching and was able to provide a good antireflective effect. (table 1). 2,2',4,4'tetrahydroxybenzophenone is disclosed as a crosslinking promoter (8/35-40). The benzophenone compounds are disclosed as having high UV absorption properties. (4/4-48). The undercoating is specifically designed to minimize the effects of reflections from the substrate. (abstract).

It would have been obvious to one skilled in the art to modify the process of Takeuchi JP 09-231569 by adding an antihalation layer, such as that taught by either Mizuta JP 04-263140 or Sato et al. '510 to prevent inadvertent exposure by reflection with a reasonable expectation of

achieving the results. The examiner notes that the materials disclosed by the applicant as co-initiators are known to be useful in forming anti-halation layers used with photoresists.

12. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

13. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-25 of copending Application No. 10/495746 (US 2005/0006336), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

14. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-6 and 13-16 of copending Application No. 10/493301 (US 2004/0259039), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

15. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of copending Application No. 10/500816 (US 2005/0039621), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

16. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claim 1 of copending Application No. 10/500719 (US 2005/0042427), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

17. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of copending Application No. 10/500008 (US 2005/0066825), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

18. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-2 of copending Application No. 10/500893 (US 2005/0118534), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

19. Claims 1-26 are provisionally rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 16-20 of copending Application No. 10/515404 (US 2005/0232130), in view of Takeuchi JP 09-231569.

It would have been obvious to modify the claimed process by using a multipulse mastering process such as taught by Takeuchi JP 09-231569 to gain the benefits of more accurate pit sizes ascribed by Takeuchi JP 09-231569 to the use of this technique.

This is a provisional obviousness-type double patenting rejection.

20. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Endou et al. JP 10-188285 (Machine translation attached) [0053] and Tsukuda et al. '701 [0119-0120] teach duty ratios for the laser in optical disk mastering.

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Martin J. Angebranndt whose telephone number is 571-272-1378. The examiner can normally be reached on Monday-Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Huff can be reached on 571-272-1385. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Martin J Angebranndt
Primary Examiner
Art Unit 1756

8/15/2006